

Birds of a Grumeti River forest in Serengeti National Park, Tanzania

Thomas Gottschalk

Un inventaire de l'avifaune des forêts galeries denses du Parc National du Serengeti en Tanzanie a été effectué entre juin 1999 et juillet 2000. La zone d'étude de 3,8 ha était située à l'intérieur d'une vaste forêt galerie le long du fleuve Grumeti à 44 km à l'est du lac Victoria. Les données ont été collectées à l'occasion de 12 sorties sur le terrain, complétées par des captures au filet d'une durée de six jours. Au total, 79 espèces d'oiseaux forestiers ont été inventoriées: l'article en présente le statut, la localisation et l'abondance. Trois espèces sont mentionnées pour la première fois au Serengeti: le Bulbul vert-olive *Phyllastrephus cerviniventris* (très répandu dans la forêt Grumeti), le Cossyphé à calotte rouge *Cossypha natalensis* et le Sénégalivert *Mandingoa nitidula*.

Introduction

Endless open plains, the large herds of ungulates and their spectacular migrations have drawn much attention to the Serengeti National Park (SNP). However, the avifauna of the park has received less attention. Basic information on the birds of SNP has been published⁹ and supplemented by Stronach¹¹. Most avian studies have either been conducted in open grasslands or woodlands^{3,10,12}, while other works are species specific⁷. Little attention has focused on the evergreen forests of Serengeti, which occur as narrow and often discontinuous riverine communities. This may be due to poachers who are present in some of these dense forests^{2,6}. These forests are in the north of the park at the Mara River drainage and in the Western Corridor along the Grumeti, Orangi and Mhalageti Rivers⁵. While conducting research in SNP a study site in a Grumeti River forest was visited monthly between July 1999 and June 2000.

Location

The study site was located along the Grumeti River in the Western Corridor of SNP (02°18'S 34°23'E) c44 km east of Lake Victoria, at 1,220 m (Fig 1). The river is the second largest in SNP after the Mara River. The site comprised a 360-m long section of the Grumeti River, an old branch and a forest patch, which is situated between the river and the branch with a total area of 3.8 ha (Fig 2). The forest is c250 m long and 180 m wide, and covers an area of c2.6 ha. Water levels in the Grumeti fluctuate depending on rainfall during the wet season. In the dry season the river consists of ponds. The water is heavily eutrophicated and turbid as a result of animal dung and stirring by Hippopotamuses *Hippopotamus amphibius*, Crocodiles *Crocodylus niloticus* and wildlife crossing the river⁴ (Fig 3). The two small pools within the old branch of the study site hold water only in the wet season.

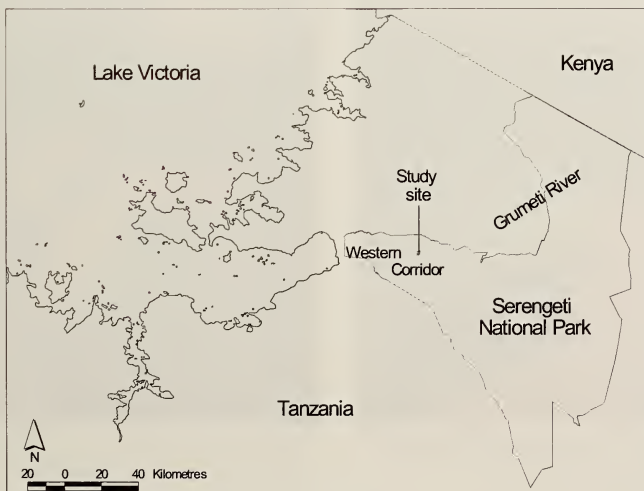


Figure 1. Location of the study site

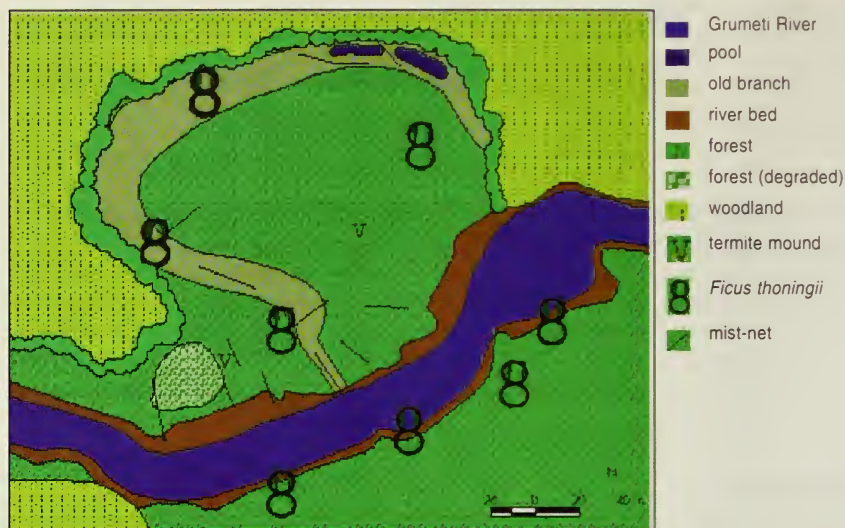


Figure 2. Main habitat types and structures of the study site.



Figure 3. View of Grumeti River from the east side of the study site (Thomas Gottschalk)



Figure 4. The interior of Grumeti River forest (Thomas Gottschalk)



Figure 5. Black-headed Gonolek *Laniarius erythrogaster* is a very frequent species in the forest (Thomas Gottschalk)

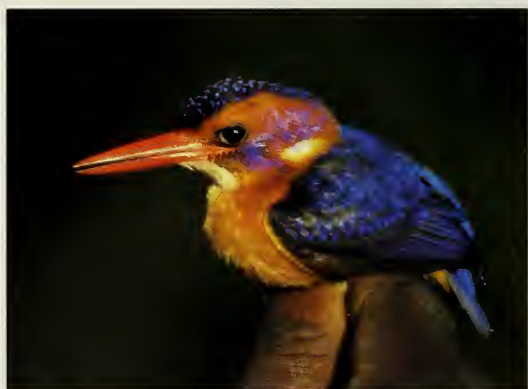


Figure 6. Pygmy Kingfisher *Ceyx picta picta* was trapped in April in the south-west of the study site (Thomas Gottschalk)

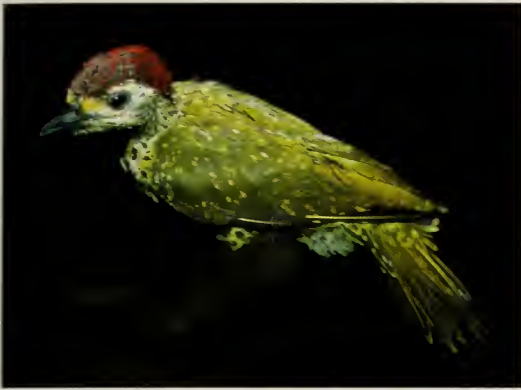


Figure 7. Little Spotted Woodpecker *Campeterna cailliauti nyanzae* was trapped in April in the south-west of the study site (Thomas Gottschalk)



Figure 8. Ashy Flycatcher, *Muscicapa caerulea scintillans* was trapped in May. The left bird had moulted the greater primary-coverts (Thomas Gottschalk)



Figure 9. Grey-olive Greenbul *Phyllastrephus cerviniventris* was trapped in May (Thomas Gottschalk)

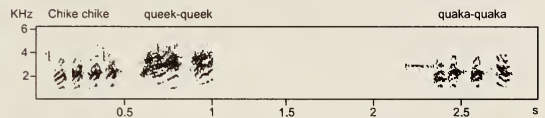


Figure 10. Sonogram of a typical call of Grey-olive Greenbul *Phyllastrephus cerviniventris* at Grumeti River. This call is often repeated and might be rendered *Chike chike queek-queek* and a soft *quaka-quaka*.



Figure 11. Red-capped Robin Chat *Cossypha natalensis intus* was trapped in May (Thomas Gottschalk)

The canopy of Grumeti riparian forests mainly comprises *Aphania senegalensis*, *Ekebergia capensis*, *Ficus* spp, *Garcinia livingstonei*, *Lecaniodiscus fraxinifolius*, *Tamarindus indica* and *Ziziphus pubescens* and in the understorey the main woody plants are *Cordia goetzei*, *Cordia ovalis*, *Crateva religiosa*, *Erythroxylum fischeri* and *Strychnos benningsii*^{5,14} (Fig 4). Within the study site a total of 18 different woody plant species was recorded. Figs *Ficus thoningii* were the largest trees and were

between 1.6 m and 2.6 m in diameter at breast height. Locations of these trees and the extent and position of all habitat types and features are shown in Fig 2.

Crocodile and Hippopotamus are present in large numbers in the Grumeti. The shoreline is often heavily compacted by Hippopotamus and the forest partially damaged by these and African Elephants *Loxodonta africana*. While elephants visited the forest irregularly and created a small clearing in the south-west part in 1999, the hippopotamus crossed the forest following their own

beaten trails every night. Larger mammals in the forest included Olive Baboon *Papio cynocephalus*, Blue Monkey *Cercopithecus mitis* and Black-and-white Colobus *Colobus abyssinicus*. Other large mammals were not recorded in the forest and may have avoided it.

Results

The study site was visited once a month during July 1999 to June 2000 except in November and December. During the wet season, in April and May, the forest was sampled twice. All bird species at the study site were recorded while walking slowly through the forest during a period of up to two hours. Additionally, mist-netting was conducted for a total of 23 hours on seven days in March and May 2000 to sample cryptic species. Up to six mist-nets with a total length of 58 m were used at different locations within the study site (see Fig 2). As many birds moved through the forest along the river, mist-nets were placed vertically to the Grumeti.

The numbers of birds in the forest differed according to rainfall and the presence of mixed-species flocks, which were moving through. Between six and 39 bird species were observed per visit and a total of 79 was recorded during the 12 daily samples and six mist-netting sessions (Appendix 1). Three species, Madagascar Bee-eater *Merops superciliosus*, African Hawk-Eagle *Hieraaetus pilogaster* and Violet-backed Starling *Cinnyricinclus leucogaster* were recorded while mist-netting but not on the foot surveys.

Following Becker¹, species that were recorded in 50–80% of the samples were considered 'frequent', those observed less often were noted as 'present' and those recorded more often as 'very frequent'. While 28 species were seen only once and another 40 on 2–5 occasions, only ten were frequent and only one, Black-headed Gonolek *Laniarius erythrogaster* (Fig 5) was very frequent.

The species recorded once were often cryptic or rare in this forest (eg African Green Pigeon *Treron calva* and Lesser Honeyguide *Indicator minor*), intra-African migrants (eg Madagascar Bee-eater and Black Cuckoo Shrike *Campephaga flava*), Palearctic migrants (European Bee-eater *Merops apiaster* and Eurasian Golden Oriole *Oriolus oriolus*) or birds which usually occur in woodland but visit water especially in the dry season (eg African Mourning Dove *Streptopelia decipiens* and Grey-headed Sparrow *Passer griseus*).

Birds, which were present close to or on the river were Egyptian Goose *Alopochen aegyptiacus*, Great Egret *Egretta alba*, Goliath Heron *Ardea goliath*, Yellow-billed Stork *Mycteria ibis* and Hadada Ibis *Bostrychia hagedash*. These preferred shallow parts of the river and were mainly recorded in the wet season, when the river was fuller. Black-crowned Night-Heron *Nycticorax nycticorax*, which is

uncommon in Kenya and north Tanzania¹⁵ was observed 500 m west of the study site in both wet seasons, on 24 May 1999 and 17 March 2000, on the flooded bridge of the Grumeti River at night.

Water Thick-knee *Burbinus vermiculatus* and Green-backed Heron *Butorides striatus* were common and often observed resting in dense thickets beside the river, but were easily overlooked and often not seen unless disturbed. African Fish Eagle *Haliaeetus vocifer* was easier to observe as it has a distinctive call and sits atop large trees. Other raptors were White-backed Vulture *Gyps africanus*, which often nests at the river (one pair used an old nest on a large fig tree in the south part of the study site), Rüppell's Griffon Vulture *G. rueppellii*, Bateleur *Terathopius ecaudatus* and African Hawk-Eagle. The most common kingfisher was Woodland Kingfisher *Halcyon senegalensis*, often located by its 'laughing' trill, while Pied Kingfisher *Ceryle rudis* was only observed in the wet season. African Pygmy Kingfisher *Ceyx picta picta* was difficult to see and perhaps often overlooked. One was trapped in April (Fig 6). The skulking White-browed Coucal *Centropus superciliosus loandae* was 'frequent'; one was trapped on 16 April 2000 and identified as *C. s. loandae* due to the black crown, which is brown in *C. s. superciliosus*¹⁵.

Two types of mixed-species parties could be distinguished according to habitat use. One occupied the ground to middle strata and the other mainly between the middle and upper strata or canopy. Species in the former grouping comprised mainly Grey-olive Greenbul *Phyllastrephus cerviniventris*, Arrow-marked Babbler *Turdoides jardineii emini*, African Paradise Flycatcher *Terpsiphone viridis ferreti*, Brown-throated Wattle-eye *Platysteira cyanea nyansae*, Grey-backed Camaroptera *Camaroptera brachyura* and White-browed Scrub Robin *Cercotrichas leucophrys*. Apart from the scrub robin these are 'frequent' in the forest. The second flock type included species such as Black-backed Puffback *Dryoscopus cubla*, Black-headed Gonolek and Grey-headed Bush Shrike *Malaconotus blanchoti*, whose loud distinct calls are often heard. The puffback and gonolek were 'frequent' and 'very frequent' respectively. Grey-headed Bush Shrike, which is not mentioned for the west part of SNP¹⁵ was recorded monthly with up to three in February–May.

Others such as Red-fronted Tinkerbird *Pogoniulus pusillus* and Schalow's Turaco *Tauraco (persa) schalowi* sometimes joined mixed-species flocks but were also seen alone or in pairs. African Green Pigeon, Brown Parrot *Poicephalus meyeri*, Bare-faced Go-away Bird *Corythaixoides personata*, Eastern

Grey Plantain Eater *Crinifer zonurus*, Schalow's Turaco and four species of barbet, preferred feeding in large fig trees. Lilac-breasted Roller *Coracias caudata* and African Grey Hornbill *Tockus nasutus* appeared to nest in holes in larger fig trees in the south of the study site.

Ashy Flycatcher *Muscicapa caerulescens* was recorded in more open parts of the forest in March–April 2000, and two trapped on 30 May 2000 (Fig 6) were perhaps of the western subspecies *brevicaudata*. The measurements show that the birds at Grumeti were obviously larger than *M. c. brevicaudata*¹³, but they were more ash-grey than blue-grey above, which is a characteristic of *M. c. cinereola*¹⁵. Occurrence of Ashy Flycatcher in the west part of SNP is not mentioned in the literature^{13,15} but according to Schmid⁹ the race *cinereola* is an uncommon to frequent resident in riverine forest in SNP.

The following three species recorded in the Grumeti Forest are not mentioned for SNP⁹ or for this region¹⁵. Grey-olive Greenbul (Fig 10) was a common but cryptic species of dense undergrowth in Grumeti Forest (presence: 0.75). It was best detected by call. Mostly 2–3 birds were seen together (mean 2.6 birds), but some individuals were perhaps missed. On 1 August 2000, a family consisting of an adult and five young was observed. Grey-olive Greenbul was often very shy, and incessantly searched for food in the leaf litter or between roots and branches close to or on the forest floor. Despite several surveys of other forests within SNP, such as the riverine forests at Mbalageti, south of Grumeti, and forests at the Mara and Bolongonja, this species was not found elsewhere. The only greenbul previously recorded in SNP was Cabanis's Greenbul *Phyllastrephus cabanisi*, which was collected by Kittenberger at the Mara River⁹. Grey-olive Greenbul is also unknown from Masai Mara National Reserve in Kenya. The nearest known location is Lake Manyara National Park^{8,15}.

One Red-capped Robin Chat *Cossypha natalensis intensa* was trapped on 30 May 2000 (Fig 11). The species is an intra-African migrant between late April and November¹⁵. It has neither been recorded for SNP⁹ nor west of the Rift Valley. Movements of inland birds are little known, particularly in northern Tanzania¹⁵.

A pair of Green-backed Twinspot *Mandingoa nitidula* was recorded following short rains, on 28 January 2000 and 21 February 2000, with a female on 17 March 2000, at the southern part of the old branch. The birds fed on the ground within dense thickets. It is not listed for SNP⁹ and does not regularly occur in northern Tanzania¹⁵, although wandering or displaced birds are occasionally recorded from inland East Africa¹⁵.

Acknowledgments

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Burgerstraße 2, 61476 Kronberg, Germany, E-mail: thomasgottschalk@surfeu.de.

Appendix 1. Bird species recorded at Grumeti River in Serengeti National Park. Those in bold are frequent at the study site.

Species English name / Scientific name	Number of days species was recorded	Presence	Species English name / Scientific name	Number of days species was recorded	Presence
Goliath Heron <i>Ardea goliath</i>	1	0.08	White-headed Barbet <i>Lybius leucocephalus</i>	1	0.08
Green-backed Heron <i>Butorides striatus</i>	2	0.17	Red-fronted Tinkerbird <i>Pogoniulus pusillus</i>	3	0.25
Great Egret <i>Egretta alba</i>	2	0.17	Golden-tailed Woodpecker <i>Campethera abingoni</i>	3	0.25
Yellow-billed Stork <i>Mycteria ibis</i>	2	0.17	Little Spotted Woodpecker <i>Campethera cailliautii nyansae</i>	2	0.17
Hadada Ibis <i>Bostrychia hagedash</i>	2	0.17	Black-throated Honeyguide <i>Indicator indicator</i>	2	0.17
Egyptian Goose <i>Alopochen aegyptiacus</i>	3	0.25	Lesser Honeyguide <i>Indicator minor</i>	1	0.08
White-backed Vulture <i>Gyps africanus</i>	3	0.25	African Pied Wagtail <i>Motacilla aguimp</i>	5	0.42
Rüppell's Griffon Vulture <i>Gyps rueppellii</i>	1	0.08	Lesser Striped Swallow <i>Hirundo abyssinica</i>	2	0.17
Bateleur <i>Terathopius ecaudatus</i>	1	0.08	Red-rumped Swallow <i>Hirundo daunca</i>	2	0.17
African Hawk-Eagle <i>Hieraetus spilogaster</i>			Wire-tailed Swallow <i>Hirundo smithii</i>	1	0.08
African Fish Eagle <i>Haliaeetus vocifer</i>	2	0.17	White-headed Sawwing <i>Psalidoprocne albiceps</i>	2	0.17
Hildebrandt's Francolin <i>Francolinus hildebrandti</i>	1	0.08	Black Cuckoo Shrike <i>Campephaga flava</i>	1	0.08
Crested Guineafowl <i>Guttera pucherani</i>	2	0.17	Common Bulbul <i>Pycnonotus barbatus</i>	6	0.50
Water Thick-knee <i>Burhinus vermiculatus</i>	2	0.17	Grey-olive Greenbul <i>Phyllastrephus cerviniventris</i>	9	0.75
Ring-necked Dove <i>Streptopelia capicola</i>	3	0.25	White-browed Scrub Robin <i>Cercotrichas leucophrys</i>	5	0.42
African Mourning Dove <i>Streptopelia decipiens</i>	1	0.08	Red-capped Robin Chat <i>Cossypha natalensis</i>	1	0.08
Red-eyed Dove <i>Streptopelia semitorquata</i>	3	0.25	Yellow-breasted Apalis <i>Apalis flavida</i>	2	0.17
Emerald-spotted Wood Dove <i>Turtur chalcospilos</i>	1	0.08	Grey-backed Camaroptera <i>Camaroptera brachyura</i>	9	0.75
African Green Pigeon <i>Treron calva</i>	1	0.08	Ashy Flycatcher <i>Muscicapa caerulescens</i>	4	0.33
Brown Parrot <i>Poicephalus meyeri</i>	6	0.50	Brown-throated Wattle-eye <i>Platysteira cyanea nyansae</i>	6	0.50
Schalow's Turaco <i>Tauraco (persa) schalowi</i>	4	0.33	African Paradise Flycatcher <i>Terpsiphone viridis ferreti</i>	8	0.67
Bare-faced Go-away Bird <i>Corythaixoides personata</i>	4	0.33	Black-backed Puffback <i>Dryoscopus cubla</i>	8	0.67
Eastern Grey Plantain Eater <i>Crinifer zonurus</i>	5	0.42	Black-headed Gonolek <i>Laniarius erythrogaster</i>	10	0.83
Didric Cuckoo <i>Chrysococcyx caprius</i>	1	0.08	Slate-coloured Boubou <i>Laniarius funebris</i>	2	0.17
Klaas's Cuckoo <i>Chrysococcyx klaas</i>	1	0.08	Grey-headed Bush Shrike <i>Malaconotus blanchoti</i>	4	0.33
White-browed Coucal <i>Centropus superciliosus loandae</i>	6	0.50	Grey-crested Helmet Shrike <i>Prionops poliophopus</i>	1	0.08
African Scops Owl <i>Otus (scops) senegalensis</i>	1	0.08	Violet-backed Starling <i>Cinnyricinclus leucogaster</i>		
Speckled Mousebird <i>Colius striatus</i>	4	0.33	Rüppell's Long-tailed Starling <i>Lamprolornis purpuropterus</i>	6	0.50
Narina's Trogon <i>Apaloderma narina</i>	4	0.33	Collared Sunbird <i>Hedydipna collaris</i>	1	0.08
Pied Kingfisher <i>Ceryle rudis</i>	1	0.08	Purple-banded Sunbird <i>Cinnyris bifasciata</i>	1	0.08
Woodland Kingfisher <i>Halcyon senegalensis</i>	4	0.33	Marico Sunbird <i>Cinnyris mariquensis</i>	2	0.17
African Pygmy Kingfisher <i>Ceyx picta picta</i>	2	0.17	Arrow-marked Babbler <i>Turdoides jardineii emini</i>	6	0.50
European Bee-eater <i>Merops apiaster</i>	1	0.08	Common Drongo <i>Dicrurus adsimilis</i>	2	0.17
Madagascar Bee-eater <i>Merops superciliosus</i>			Black-headed Oriole <i>Oriolus larvatus</i>	5	0.42
Lilac-breasted Roller <i>Coracias caudata</i>	1	0.08	Eurasian Golden Oriole <i>Oriolus oriolus</i>	1	0.08
Green Wood-Hoopoe <i>Phoeniculus purpureus</i>	2	0.17	Red-headed Weaver <i>Anaplectes rubriceps</i>	1	0.08
Von der Decken's Hornbill <i>Tockus deckeni</i>	1	0.08	Holub's Golden Weaver <i>Ploceus xanthops</i>	2	0.17
African Grey Hornbill <i>Tockus nasutus</i>	5	0.42	Grey-headed Sparrow <i>Passer griseus</i>	1	0.08
Double-toothed Barbet <i>Lybius bidentatus</i>	4	0.33	African Firefinch <i>Lagonosticta rubricata</i>	1	0.08
Red-fronted Barbet <i>Tricholaema diademata</i>	1	0.08	Red-billed Firefinch <i>Lagonosticta senegala</i>	2	0.17
Spot-flanked Barbet <i>Tricholaema lachrymosa</i>	1	0.08	Green-backed Twinspot <i>Mandingoa nitidula</i>	3	0.25

Appendix 2. Measurements (in mm) of 12 birds trapped in mist-nets on seven sessions during 23 hours between March and May 2000. *Bill measurements refer to the upper mandible measured to the feathers. Sample size for those data repeated from Urban *et al*¹³ was five males.

English name / Scientific name	Date	Sex	Bill*	Tarsus	Tail	Overall length	Wing
African Paradise Flycatcher <i>Terpsiphone viridis ferreti</i>	17.03.00		-	-	204	306	86
White-browed Coucal <i>Centropus superciliosus loandae</i>	16.04.00		30.7	44.9	215	450	167
African Pygmy Kingfisher <i>Ceyx picta picta</i>	16.04.00		23	10.7	28.4	120	52.5
Little Spotted Woodpecker <i>Campethera cailliautii nyansae</i>	16.04.00		15.8	16.2	65	183	99.5
Brown-throated Wattle-eye <i>Platysteira cyanea nyansae</i>	16.04.00	♀	14	19	-	-	64.5
Arrow-marked Babbler <i>Turdoides jardineii emini</i>	16.04.00		18	31.8	109	230	101
Red-billed Firefinch <i>Lagonosticta senegala ruberrima</i>	16.04.00	♂	9	12.2	37.2	101	47
Grey-olive Greenbul <i>Phyllastrephus cerviniventris</i>	06.05.00		15.6	22.4	86.3	204	87
Rüppell's Long-tailed Starling <i>Lamprolornis purpuropterus</i>	07.05.00		19.4	40.7	131	315	152.5
Red-capped Robin Chat <i>Cossypha natalensis intensa</i>	30.05.00		15	28.6	78	190	95
Ashy Flycatcher <i>Muscicapa caerulescens cinereola</i>	30.05.00		9.65	17.25	58.1	145	76
Ashy Flycatcher <i>Muscicapa caerulescens cinereola</i>	30.05.00		10.65	17	61.8	151	81
Ashy Flycatcher <i>Muscicapa caerulescens brevicauda</i>	Urban <i>et al</i> ¹³	♂	14.9	16.2	49.6		70.4